

What is claimed is:

1. An experimental animal having corneal epithelial damage, wherein said corneal epithelial damage is caused by contacting an ocular cornea of said animal with a water-absorbing material and thereby generating a difference in osmotic pressure between an inside and an outside of the ocular corneal epithelium cells.
2. The experimental animal of claim 1, wherein said corneal epithelial damage is dry eye.
3. The experimental animal of claim 1, wherein the water-absorbing material is contacted either with a whole area of the ocular cornea or a part thereof, or with a pupil area of the ocular cornea.
4. The experimental animal of claim 3, wherein said corneal epithelial damage is dry eye.
5. The experimental animal of claim 3, wherein the experimental animal is a non-human mammalian or a fowl.
6. The experimental animal of claim 3, wherein the experimental animal is rabbit.
7. The experimental animal of claim 3, wherein said water-absorbing material includes at least one material selected from the group consisting of a polyol, a salt, an amino acid, a peptide and a water-soluble polymer.
8. The experimental animal of claim 3, wherein said water-absorbing material includes at least one material selected from the group consisting of a saccharide, an alkali metal salt and an alkali earth metal salt.
9. The experimental animal of claim 3, wherein said water-absorbing material includes at least one saccharides selected from the group consisting of glucose, maltose, sucrose, fructose, dextran and starch.
10. The experimental animal of claim 3, wherein said water-absorbing material is used in a physical state selected from the group consisting of powder, solution, gel, jelly and tablet.

- 1 11. The experimental animal of claim 3, wherein the ocular cornea is covered with a
2 water-impermeable membrane or film having a hole or holes therein, the
3 membrane or film being placed on the ocular cornea so that the hole or holes in the
4 membrane or film comes on around the pupil area thereof, and said water-
5 absorbing material is contacted with the ocular cornea through said hole or holes of
6 the membrane or film.
- 1 12. The experimental animal of claim 11, wherein said corneal epithelial damage is dry
2 eye.
- 1 13. The experimental animal of claim 11, wherein the experimental animal is a non-
2 human mammalian or a fowl.
- 1 14. The experimental animal of claim 11, wherein the experimental animal is rabbit.
- 1 15. The experimental animal of claim 11, wherein said water-absorbing material includes
2 at least one material selected from the group consisting of a polyol, a salt, an amino
3 acid, a peptide and a water-soluble polymer.
- 1 16. The experimental animal of claim 11, wherein said water-absorbing material includes
2 at least one material selected from the group consisting of a saccharide, an alkali
3 metal salt and an alkali earth metal salt.
- 1 17. The experimental animal of claim 11, wherein said water-absorbing material includes
2 at least one saccharide selected from the group consisting of glucose, maltose,
3 sucrose, fructose, dextran and starch.
- 1 18. The experimental animal of claim 11, wherein said water-absorbing material is used
2 in a physical state selected from the group consisting of powder, solution, gel, jelly
3 and tablet.
- 1 19. The experimental animal of claim 3, wherein the water-absorbing material is
2 contacted with the ocular cornea through a water-permeable or semi-permeable
3 membrane or film.

1 20. The experimental animal of claim 19, wherein said corneal epithelial damage is dry
2 eye.

1 21. The experimental animal of claim 19, wherein the experimental animal is a non-
2 human mammalian or a fowl.

1 22. The experimental animal of claim 19, wherein the experimental animal is rabbit.

1 23. The experimental animal of claim 19, wherein said water-absorbing material includes
2 at least one material selected from the group consisting of a polyol, a salt, an amino
3 acid, a peptide and a water-soluble polymer.

1 24. The experimental animal of claim 19, wherein said water-absorbing material includes
2 at least one material selected from the group consisting of a saccharide, an alkali
3 metal salt and an alkali earth metal salt.

1 25. The experimental animal of claim 19, wherein said water-absorbing material includes
2 at least one saccharide selected from the group consisting of glucose, maltose,
3 sucrose, fructose, dextran and starch.

1 26. The experimental animal of claim 19, wherein said water-absorbing material is used
2 in a physical state selected from the group consisting of powder, solution, gel, jelly
3 and tablet.

1 27. A method of screening or evaluating a medicine for treatment or improvement of a
2 corneal epithelial damage, comprising the steps of:

3 contacting an ocular cornea of an experimental animal with a water-
4 absorbing material and thereby generating a difference in osmotic
5 pressure between an inside and an outside of the ocular corneal
6 epithelium cells to produce corneal epithelial damage ;

7 administering a medicine to the damaged ocular cornea ; and

8 evaluating the therapeutic effect thereof on the corneal epithelial damage.

1 28. The method of claim 27, wherein said corneal epithelial damage is dry eye.

- 1 29. The experimental animal of claim 27, wherein the experimental animal is a non-
2 human mammalian or a fowl.
- 1 30. The experimental animal of claim 27, wherein the experimental animal is rabbit.
- 1 31. The experimental animal of claim 27, wherein said water-absorbing material includes
2 at least one material selected from the group consisting of a polyol, a salt, an amino
3 acid, a peptide and a water-soluble polymer.
- 1 32. The experimental animal of claim 27, wherein said water-absorbing material includes
2 at least one material selected from the group consisting of a saccharide, an alkali
3 metal salt and an alkali earth metal salt.
- 1 33. The experimental animal of claim 27, wherein said water-absorbing material includes
2 at least one saccharide selected from the group consisting of glucose, maltose,
3 sucrose, fructose, dextran and starch.
- 1 34. The experimental animal of claim 27, wherein said water-absorbing material is used
2 in a physical state selected from the group consisting of powder, solution, gel, jelly
3 and tablet.
- 1 35. The method of claim 27, wherein the water-absorbing material is contacted either
2 with a whole area of the ocular cornea or a part thereof, or with a pupil area of the
3 ocular cornea.
- 1 36. The method of claim 35, wherein the ocular cornea is covered with a water-
2 impermeable membrane or film having a hole or holes therein, the membrane or
3 film being placed on the ocular cornea so that the hole or holes in the membrane or
4 film comes on around the pupil area thereof, and said water-absorbing material is
5 contacted with the ocular cornea through said hole or holes of the membrane or
6 film.
- 1 37. The method of claim 35, wherein the water-absorbing material is contacted with the
2 ocular cornea through a water-permeable or semi-permeable membrane or film.
- 1 38. The method of claim 27, wherein said method further includes the steps of:

staining the damaged area of the ocular corneal epithelium either

(a) after administration of the medicine, or

(b) before and after administration of the medicine; and

evaluating the therapeutic effect of said medicine, based on change in the stained area of the ocular corneal epithelium.

39. The method of claim 27, wherein the medicine is an eye drop.

40. The method of claim 38, wherein the medicine is an eye drop.

41. A medicine useful for treatment or improvement of a corneal epithelial damage, which is obtained, selected or evaluated by the method of claim 27.

42. A medicine useful for treatment or improvement of a corneal epithelial damage, which is obtained, selected or evaluated by the method of claim 38.

43. A method of making an experimental animal having corneal epithelial damage, comprising the step of contacting an ocular cornea of said animal with a water-absorbing material and thereby generating a difference in osmotic pressure between an inside and an outside of the ocular corneal epithelium cells.